

SIXPENCE

AUGUST 1943

# AMATEUR RADIO

THE  
OFFICIAL ORGAN  
OF THE  
WIRELESS INSTITUTE  
OF  
AUSTRALIA



Published by the Victorian Division

# AMATEUR-RADIO

INCORPORATING THE N.S.W. DIVISIONAL BULLETIN

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## FREQUENCY MODULATION

Part II - Continued.

By R. A. Priddle - VK2RA

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T.R.F. REGENERATIVE F.M. RECEIVERS...In QST for May 1943 a FM receiver is described which can be built without any special components. The circuit is shown in Fig 4, the coil values given being for the U.S. 45 Mc FM Broadcast Band.

The audio amplifier should have high gain and high fidelity if the advantages of FM are to be fully realised.

The 6SJ7 RF amplifier-limiter is regenerative and behaves like an unstable ECO whose low-Q circuit allows it to lock-in with the incoming signal and follow its frequency variations. The discriminator is normal.

Values of components are not critical except that R4, R5 and C7, C8 should be equal for discriminator balance.

If the tuning condensers C1, C2, C3 are gauged, the circuits can be aligned by spreading or squeezing the coils. The two halves of L4 must be kept symmetrical - about L3. Resonance of C2, L3 with C1, L2 is indicated by the 6SJ7 going into oscillation at a low setting of the regeneration control R2. Resonance of C3, L4 is indicated by maximum voltage developed across R4 or R5.

The discriminator is checked for balance by connecting the voltmeter across R4 and R5 (both) and tuning C1 to either side of resonance, when the voltage should be zero at resonance and should rise to equal and opposite values on either side.

Operation of the receiver is similar to that of an ordinary T.R.F. receiver.



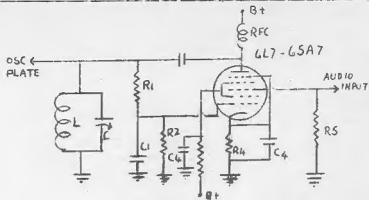


FIG 5

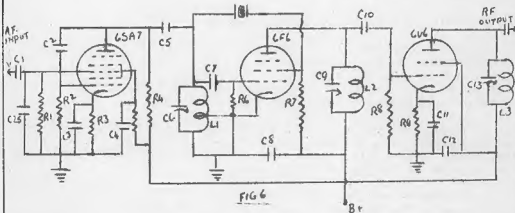


FIG 6

C1.....0.05  
C2.....10mfd  
C3,4,5,8  
10,11,12,0.0015  
C6,9.....50mfd  
C7.....0.0001  
C13.....250mfd  
C25.....100mfd

R1,4,7.....0.2 meg  
R2......100 ohms  
R3:......1500 ohms  
R5;8,......0.1 meg  
R6......60,000 ohms  
R9......250 ohms  
All 1/2 watt

All coils No 22 close wound on  $\frac{1}{2}$  inch form  
L1.....34 turns tapped at 10 turns  
L2.....15 turns  
L3..... 6 turns

The plate current of the 6L7 is in phase with the grid voltage, so that the RF plate current of the 6L7 lags 90 degrees behind the RF voltage in the oscillator tank. Hence the 6L7 behaves as if it were an inductance coupled across the tank, the value of the inductance depending upon the plate current of the 6L7. This plate current varies with the audio voltage applied to No. 3 grid and so the speech variations alter the oscillator frequency.

Voltage regulation is more important than with an ordinary E.C.O., so that the use of a regulator tube is almost essential.

With an oscillator frequency of 7 M/cs and tank condenser of 200 mmfd, 2 volts audio will produce a deviation of about 2 K/cs. If the final is operating on 28 M/cs, the deviation at this frequency will be  $4 \times 2$  equals 8K/cs. For narrow-band FM (deviation 4 K/cs) the audio input may be reduced, or the crystal controlled exciter of Fig 6 may be used.

A CRYSTAL CONTROLLED FM EXCITER... This unit consists of a (QST October 1942) 6F6 E.C.O. with crystal connected between screen and control grid so as to provide crystal locking.

Over a considerable portion of the range of C6 the frequency is controlled by the crystal, but for best operation C6 should be operated near the capacity where control is lost. The plate circuit of the 6F6 is tuned to twice the crystal frequency and further doubling is effected in the 6V6-stage.

The 6SA7 reactance modulator is connected across L1, C6 and requires about 3 volts audio to vary the 7M/cs oscillator 750 cycles either side of the crystal frequency. This will give a deviation of 3 K/cs at 28 M/ cs.

Adjustment of the oscillator can be made by using a plate milliammeter and listening to the 7Mc beat in a receiver. A point will be found in tuning C6 where the plate current "kicks" and the frequency changes rapidly. The oscillator should be operated as near as possible to this setting, although both C6 and C9 may need de-tuning slightly for stable operation.

CONCLUSION ... It is hoped that these articles may be of some benefit to those who have not had access to over-seas literature on FM. The general principles have been discussed, and the adaptor and exciter described should be useful to Hums who wish to try out narrow-band Frequency Modulation.

A VACUUM TUBE OPERATED TIME DELAY RELAY

By

... A. S. Moyo, VK2BW ...

Here is the circuit of a relay actuated by any old power tube with which it is possible to accurately time the exposure of an enlarger or printer to a predetermined time by setting a calibrated variable resistor and pressing a push button. At the end of the desired interval the relay is automatically opened.

The unit makes use of gear generally relegated to the junk box.

As shown the circuit values give a time delay from about 1/50 second to  $3\frac{1}{2}$  seconds. This time may be increased to minutes by increasing the variable resistor or grid condenser or both. However after some tens of thousands of exposures with the relay, it was found that the most useful range was from 1/4 to 2 seconds. The illumination of both the enlarger and printer was adjusted till 1/2 second exposure through the thinnest printable negative was just right on 4B1 and VF4 Kodak papers respectively. It was then found that all other exposures came within the above range with the exception of a few dark negatives or a big enlargement, when an increase may be had by closing switch S and counting the relay clicks.

Tube types 46 (triode), 45, 47 (triode), 2A3 have all been tried and found satisfactory and I dare say the indirectly heated type should work just as well.

The power supply need not be filtered and may consist of any old power transformer giving the required filament voltages and a high voltage secondary from 200 to 400 volts.

The 2 mfd condenser across the relay prevents chatter and is the lowest value that can be used here. When the relay is in the open position the bottom set of contacts are closed and are in series with the push-button. This gives a uniform discharge to the grid condenser each time the button is pressed. The 4000 ohm resistor is included to stop sparking across the button and may be varied down to 1000 ohms without any trouble.

The grid condenser was obtained by wiring in parallel 1, 2 and 4 mfd units which can be rated to work as low as 100 volts but must be in good condition. Any leakage causes the idle current of the tube to be too high and the relay will not open easily. This rules out the use of Electrolytic condensers.

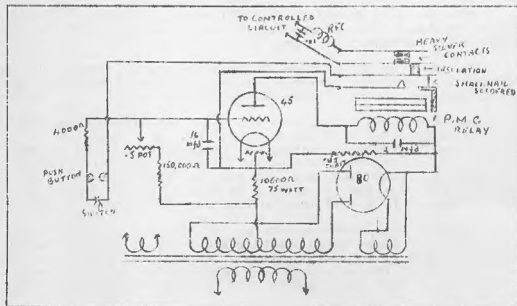
The 50,000 and the 10,000 ohm resistors as shown are rated quite high for wattage but this prevents heating and consequently any change in the calibrated time. Smaller wattage resistors may be used in any setup not requiring very accurate timing.

The relay was made from an old P.M.G. type re-wound with about 40 S.W.G. enamelled wire till the bobbin was full. On top, in place of the regular contacts were mounted the contacts from a two circuit phone jack. The main contact points were made of silver and were it not an offence to deface the coin of the realm, I would suggest a coin would be just right! The smaller contacts in series with the button were the original ones of the phone jack.

Adjust the points so that the top ones are just opened when the lower ones are making contact. So when the button is held closed or the switch S closed the relay clicks but doesn't break the main contacts. The original relay closed at 12 mas. and opened at 8 mas.

It may be necessary to include a choke in series and a condenser across the main points if B.C.L. trouble is encountered. An old R F choke and a 0.01 mfd condenser got rid of all clicks in my case.

To calibrate the variable resistor, in this case an ordinary tapered potentiometer, the number of clicks per minute was counted and a paper scale marked accordingly. This calibration still stands O.K. after nearly 12 months continuous use.



WIRELESS INSTITUTE OF AUSTRALIA

.. Victorian Division ..

President's Annual Report for Year ending 30th June, 1943.  
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I have the pleasure in presenting herewith the report on the activities of the Victorian Division for the year ended 30th June 1943, and as finance is, perhaps the most important item of any organisation, I will deal with this matter first.

As the balance sheet (a copy will be forwarded to each member) discloses, over the past year receipts amounted to £139-7-6 whilst expenses of management, including rent £93-4-6 amounted to £170-9-4. After providing £55-12-6 for depreciation and allowing for £11-12-7 loss on the publication of Amateur Radio a deficit of £78-12-11 results, which figure compares favourably with other years. Rent may be considered excessive in comparison with our receipts but the Council of this Division has always maintained that our reserve should be used in time of emergency to ensure permanency of our rooms.

The only change in our assets during the year was the sale of our holding of £600 in Grain Elevators Board Debentures and the re-investment of £500 in Commonwealth Government Inscribed stock. At the time of the sale it was thought that our cash balance would be insufficient to meet expenses until the end of the year. This did not prove to be the case and the amount of £100 will probably be re-invested in the next Commonwealth Loan.

MEMBERSHIP ... For the first time since 1939 the number of financial members in this Division has shown a marked increase...from 104 at the end of last year to 148 at present. Amongst the additional 44 are many new members, while some could almost be classed as such, as it is some years since they had taken any interest in Institute affairs. However, the fact that they have joined, or re-joined as the case may be is proof of their newly found interest in current and future Institute activities and I have much pleasure in welcoming them to our ranks. I hope that they will be fit to take an active interest in all Institute affairs and thus help to preserve and extend this Institute as a virile organisation for the advancement of all radio Hms in this State, and indeed the whole of Australia. Later in the evening Membership Certificates will be handed to all those present who are entitled to receive them.

EMERGENCY COMMUNICATION NETWORK...Probably the most important activity during the year and one which has certainly aroused the most interest amongst Hms both within the outside the Institute, has been the negotiations in respect of an Emergency Communication Network.



Since the outbreak of war Council has been watching for opportunities to prove the Amateurs' value to the community and following upon the entry of Japan into the war and the consequent acceleration of ARP activities in this state, steps were taken to investigate the possibilities of some scheme of radio communication. The Secretary unofficially obtained the view of ARP officials whose opinion was that existing facilities were adequate for any emergency.

With the granting of permission to other Divisions to establish networks. Council deputised Ivor Morgan VK3DH to draw up a scheme to cover the metropolitan area. 300 circulars were sent to metropolitan Hams to ascertain the number interested and available to operate stations in any scheme. A very satisfactory response was received and the proposed scheme was then submitted to the Chief Air Raid Warden.

Our delegation was very well received but after due consideration we were advised that the scheme would be superfluous as a radio network already operates in the metropolitan area in conjunction with the police Department. Alternative schemes were discussed and a second circular was forwarded to 105 country amateurs. Once again a most satisfactory response was received and it is now proposed to discuss further ECM suggestions concerning both metropolitan and country hams with the Senior Radio Inspector of this State.

OFFICIAL CUSTODY OF TRANSMITTING GEAR... When this order came along immediate representations were made to the Radio Inspector to allow the containers to be opened, enabling the gear to be re-packed in a manner suitable for transportation. This was agreed to and many Hams availed themselves of the opportunity to ensure that their gear would suffer no damage.

PRISONER OF WAR FUND... Members responded well to appeals for donations to a P.O.W. Fund, sponsored by Federal Headquarters, and an amount of £15.13.6 which includes £5 from Divisional funds has already been forwarded to FHQ and a further sum of £1.16.0 is being held. The despatch of parcels to hams known to be Prisoners of war is being attended to by FHQ and whilst too early for us to have received any acknowledgement of receipt of parcels we can well imagine how pleased those hams who are P.O.W. would be to receive them. Further donations may be forwarded to the Treasurer.

LICENCING OF RADIO SERVICEMEN... When this was first mooted some months ago it appeared that the sale of radio parts would be restricted to servicemen. A letter was forwarded to the Department for War Organisation of Industry pointing out our special qualifications and requesting that parts be made available to amateurs for the maintenance of their own

equipment. A reply was received to the effect that our claims would receive consideration when regulations were formulated. Since then, it has been announced that radio servicemen were to be licenced and a further letter has been forwarded asking for clarification of our position.

MORSE CLASS. After running continually for two years and nine months the closure of this class was forced upon us in March of this year owing to lack of pupils, due no doubt to the fact that the Services are now training their own operators. We are indebted to the instructors who acted in an honorary capacity, and I would take this opportunity of thanking Messrs. Quin, Marriott, Ridgeway and Mrs. Henry together with Messrs. Campbell, Callaghan and Riddell who offered their services; for their valued assistance to me in the conduct of the classes.

THE MAGAZINE. Following a suggestion from Federal Headquarters negotiations were entered into with the New South Wales Division which resulted in the incorporation of the N.S.W. Divisional Bulletin with Amateur Radio. Through the action of the N.S.W. Division contributing towards the cost of the extra pages and also through N.S.W. supplying a larger quantity of notes and technical articles, it was possible with the August 1942 issue to increase to fourteen pages whereas previously we had been turning out an 8 - 10 page magazine. This meant that more time had to be devoted to the actual work of printing, assembling, wrapping and addressing the magazine as circulation increased rapidly until now 170 copies go to New South Wales each month, and the total circulation has reached 375, copies also being sent to Amateur Organisations throughout the world.

As a result the Magazine Committee has been forced to spread the work over two consecutive Saturday afternoons which ensures the regular appearance of the magazine early each month. The Institute is indebted to the members of the Magazine Committee who devote so much of their spare time to the preparation of the magazine, and thanks are also due to the New South Wales Division for the way in which technical articles and notes have been supplied promptly on time each month.

The inclusion of the feature "Slouch Hats and Forage Caps" has proved a popular item and we are indebted to Jim Corbin VK2YQ for his work on these pages.

Visiting American Hams, whose addresses are known to us have been placed on the mailing list and we would be pleased to extend this courtesy to any international Hams who may be in Australian Territory.

Before leaving the subject of the Magazine, I would like to mention that September of this year will see the completion of ten years of publication. Yes, the first issue of Amateur Radio

appeared in October 1933, and its regular appearance over the succeeding ten years is an achievement of which we can be justly proud.

In conclusion it is apparent that despite war time restrictions the Institute in this State is in a healthy position. The increasing membership, the continued publication of the magazine and the possibilities of an Emergency Communication Network show that the Institute in this State is a live body which augurs well for the future of Ham Radio in this Division.

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#### NOTES FROM FEDERAL HEADQUARTERS

The most important happening in Amateur Radio circles recently has been the announcement by the Minister for War Organisation of Industry, the Right Honorable J. J. Dodman, that Radio Servicemen were to be licensed. Institute members will recollect that certain proposals for the organisation of Radio Servicing as an industry were mooted sometime ago. Those original proposals, if agreed to by W.O.I. would have meant that Radio Servicing would have been placed in the hands of a few members of the community and one of the greatest monopolies of all time created. One particular proposal was that only Licensed Servicemen would be permitted to purchase spare parts. Federal Headquarters fully realised the injustice that would be done to hundreds of Amateurs throughout Australia if regulations were gazetted along those lines and a strong protest was made to the Minister and various anomalies pointed out to him.

As a result of this protest, regulations were recently gazetted wherein the part time Serviceman was recognised and given the right to apply for a Licence and Licences would be issued to any person provided that his qualifications were satisfactory, irrespective of membership of any trade organisation. These concessions again prove the value of the Wireless Institute of Australia to the Amateur both in peace and war.

Federal Headquarters has received a copy of the V6 Division's Annual Report (published in the June issue of "V.R."). The Executive Officers of this Division are to be congratulated upon the splendid work that they are doing to keep the flag flying in the West. It is indeed a feather in their cap to obtain official recognition from the Civilian Defence Authorities and receive permission for the installation of an Emergency Communication Network. The co-operation that has been received by V.E.W. from VK6 is very much appreciated and sets an example to other States. Well done VK6 and many thanks!

The total of the P.O.W. Fund is still growing and recently a donation of £5-5-0 was made to the Red Cross P.O.W. Fund. Rewards have been sent to Jim Edwards VK2LKE and Snow Campbell VK6R. These are the only P.O.W.'s whose addresses are known to F.E.W. Do you know a ham who is a P.O.W. in any country other than Germany or

If so send the information on to your Divisional Secretary or the Federal Secretary, 21 Tunstall Avenue, Kingsford.

2AKE and 3MA are both in Italy and the way things are shaping in the Mediterranean both lads should have a sporting chance of coming home very soon and then F.M.C. won't have any P.O.W's to assist and about £40 in hand so let's have those names, fellows.

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#### NEW SOUTH WALES DIVISION.

The July General Meeting was held as usual at F.M.C. Buildings, Sydney, and an interstate visitor in the person of Jack Coulter VK3MV was present.

Discussion centred around the various changes in the Network and admiration was expressed at the spirit in which some changes was taken.

3MV who belongs to the "Silent Service" gave a short talk on his wanderings since joining up. The speaker had a manner all of his own in describing various experiences and his talk was very much appreciated.

Subscriptions still continue to come in for the P.O.W. Fund. The total of this Fund Federally is now rather high and the total number of P.O.W's in this State whose addresses are known is only one. Council suggests that for the time being that when forwarding donations that it be given the right to use its discretion as to allocation between the P.O.W. Fund and the A.C.F. Recently a donation of £3-3-0 was made to the Institute by Life Member Kerry Stone and it was decided with Harry's permission that £1-12-0 be given to the A.C.F. "Adopt a Soldier Scheme". This means that one soldier will receive comforts for a period of twelve months. Whatsa fellows? How about making it possible for the Division to adopt another nine soldiers making a total of ten? This would cost £27-3-0. When forwarding your subscription why not add a few extra shillings to go to the A.C.F. and help provide a few comforts for hams serving in the "Northern Paradise".

Members will join with Council in expressing sympathy to Ross Wodon VK2PF upon his recent sad bereavement occasioned by the loss of his brother whilst serving with the A.A.A.F. in Scotland.

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#### EMERGENCY COMMUNICATION NETWORK.

The past month has been rather a quiet one for the E.C.N. In the last issue of the magazine you were informed that, in future, the Network would be part of the National Emergency Services. This changeover necessitated new locations for two stations, the installation of an entirely new station and the elimination of one.

These changes have now been completed and by the time you read this every location will have been tested and the Message Handling Exercises in full swing again.

Stations whose locations have been changed are VL2JH and VL2JL. VL2JH's change was quite a big one. U.K.S. required a station in the Illawarra district and as the amateurs attached to VL2JK under the S.W.E.C.C. scheme had fallen down on the job, so much so that this station had to be eliminated, the Technical Committee were placed in rather a dilemma. Communication had to be provided from that district or the Controller of Technical Services informed that the Institute couldn't do the job it had embarked upon. This would have been a very bad advertisement for ham radio. The closest station to the new site was VL2JH seven miles away. Ern Hodgkins VK2EH, Section Leader at VL2JH, was informed of the position and he immediately volunteered to fill the breach by moving his station to the new site. This action is highly commendable and is a striking example of the real ham spirit. Now associated with 2EH are Tom Barnes VK2ABI - who also is making a considerable sacrifice in travelling to the new site "Jarry" Junk 2EY and Ken Davidson. VL2JH was on the air last Sunday and put in quite a good signal. Well done chaps and thanks a lot.

VL2JL's move was only a small one and the boys are quite happy about it and reckon they'll make good their boast about "day-light being second" when the Traffic skeds are in operation again.

At last "Shorty" Higgins has realised his ambition. He's going to have a station at last! One of these days I'll get the magazine to print Chas' original application for enrolment in the E.C.N. plus his comments regarding the suitability of his home location for U.H. F. Well on here's your opportunity to make good those words and knowing you I haven't any doubts that you will. VL2JP is the call and it is further away from Control than any other station, but despite this fact it is already putting in an excellent signal. Ron Richardson is associated with 2IQ and VL2JP will be among the leaders very soon. That is of course provided that nobody does anything silly like getting married or something.

Valo VL2JI. Unfortunately no place could be found in the new scheme of things for this great station whose transmissions and operating procedure were a splendid example to the remainder of the Network. When informed of this decision Section Leader Chas. Fryar VK8NP whilst expressing regret at the change stated that he was quite willing to go "where his services could be best utilised for the benefit of the Network as a whole" 2NP is now with Jeff Thompson at VL2JG. Listen you "glass arms" we don't want any I.C.W. at 50 w.p.m. just break it down to 49. Aloc Little goes to VL2JH and this should help relieve the burden (?) on 2IQ. The transmitter from VL2JI is to be used as a stand by for VL2JB at the subsidiary Control.

SLOUCH HATS and FORAGE CAPS

By 2YC.

Our notes, like the butter, are on the rationed side this month, but I think there is enough to go through and there is always next month to get another batch - so chaps write those few lines NOW.

The most welcome thing about this month's notes, is, that there is a batch from VK 6 - real DX - fb 6FL OM - please keep them coming-- there's nothing more depressing than two pages of notes almost all about one State.

Have just heard that VK6AF Alan Foxcroft has received his commission. Now Pilot Officer, and he must be one of the youngest Officers in the Service. A teacher in private life Alan is now instructing Instructors - Hi! Congrats Alan.

VK6MV - Flight Lieut. "Bill" Weston over this way last year, now somewhere in Queensland. How about another visit, Bill?

VK6JR Glad Clinch now Warrant Officer. Has spent some time up North. Ask Glad what it is like looking for Diamonds - hi!

Bill Morris back again in the West. Bill was VK6WM and is now Staff Sergeant. Want some news from you Bill! How about it?

C. G. Morrison another VK6 over East somewhere. I am told that he is in Queensland. Sorry Cyril I forgot that Pilot Officer on the front end. Congrats and lets have some news.

In conclusion "fellars" - 2 YC wants some dope for this column and we want to see that he gets it, so you VK6 boys wherever you may be, send it along.

Hold it! Have just realised that VK6RH is in New Guinea. Ray must be with the Fuzzie Wuzzies. I'll bet he will tell a grand tale when he returns on leave. That shouldn't be long.

And one more for good measure - VK6PH - brother to Ray GRH - is now Pilot Officer somewhere in Queensland. That's all - 73's - 6FL.

Have you heard that story about one of our Hams off one of His Majesty's Australian Auxiliary Cruisers about to go on fourteen days leave, who went to have a last "look" at the rig. But there were apparently other hams on that ship, as even the key was tied down with steel hawsers and anchor chain. Hi!

VK3XZ - after spending two years overseas returned some months ago to work as we've found out, on lms-hms gear - someone says he transmits in his sleep - from what we gather from the note his modulation on all bands is pluperfect, with distortion.

3RD - Jack Dune recently went somewhere up North.

6LA one Jack James has just about set a record for a trip from Perth to Melbourne - he only travelled 4500 miles detouring around good old Aussie. Other than that he has no news but hopes to be returning to the west soon.

3AF - is up in Alice Springs.

Captain Bennett a VK3 Ham was married on his last leave after being to three continents and N.G. in four years of service.

3DA and 3MQ are still up in VK4.

3RD os over in Perth...some of the boys want to know how the "Swan" is .. don't know if they mean the River or something else. Major Whyte is doing fine up in N.G. he likes to be alone.

Morry Quick 3RQ who joined the R.A.A.F. prior to the outbreak of war on the engineering side has climbed up through the ranks to the rank of W.O. Has spent considerable time in Darwin and up in N.G. When seen he was about to take off for all points north.

Neil Templeton 3HG, another of the boys to join up right at the outbreak of war has been in the sigs office at Air Board ever since - has also reached the rank of W.O.

The other night a laddie wandered into the shop with a prescription and while I was making it up he asked who was 2YC around here. (QSL card on display for such fish. Hi!) He turned out to be 4KM just about to depart with the R.A.A.F. for far places. Of course, as luck would have it he was in a hurry being a visitor at some relations out here and I was busy. Not having heard from him as arranged I guess he is another who has "gone places."

He was able to tell me that 4XO in the Merchant navy has been torpedoed twice "already". Saw plenty of service in the Med., having been among other places at the evacuations of Greece and Crete. VK6ZO and VK6GT are both now on the "Woastralia" having first served on the "Kanimbla". Both Telegraphists and both when you read this headed into the War Zone. I believe 4RF is taking his rig and ship along with them.

I heard of a VK4 Ham (in the Service) who is on leave and was found searching VIB for Wireless Gear, and ever since I've been wondering if he knows what I don't, and its time to get the dust off things. Hi!

VK3TC/3DU - D. Bowie recently joined the ranks of the Benedicts. Up till now he has been most familiar with telephone trunk line services and country trains, and in between times works on or dreams of Xmitters, after the War.

Graham McGowan 3GO is a hush hush worker on unknown gear and if words were worth sovereigns he wouldn't give you a farthing. Hi! (Oh, well, if its the same 3GO whom I used to hear on 28mc way back in 1929, he is still in the front of HF DX. Hi! 2YC) VK4 KZ after a long spull in NT has just come down from Darwin, and came by plane too. At the moment he is on leave, and making the most of it.

VK9RC was located in Madang when the gun went off and stayed long enough to see the Japs blow his house and hospital up, so I guess you can say he has been in the thick of it. When seen by 3YW he was waiting to be discharged and after ards his QRA is to be VIM. VK5YF is the "fortunate" nephew of an "unfortunate" uncle 3YW. I think the Adjectives come thus. - Ken is being carted all over the place per plane to fix up W/T gear and even catches lots of fish, while all Uncle can find to do is "say his prayers every night that Stawell will get an ECN station of some sort allotted to it" Hi! I reckon those adjectives aren't descriptive enough, on...2YC.

Thanks everybody...your column is beginning to "crawl" & lots hope you get it past the walking to the running stage pretty quickly. Remomber notes to Div. Secretaries or direct to Jim Corbin VK2YC, 78 Maloney St. Mascot. if you are in Sydney, 'phone ML1092.

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The Division meets on the Third Thursday of each month at Y.M.C.A. Buildings, Pitt Street, Sydney, and an invitation is accorded to all Amateurs to be present.

**H A M S !**

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**EVERY ACTIVE HAM**

in the Commonwealth.

Strengthen our hand by writing to The Secretary of the Institute in your State to-day.

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